REMARKS

Claims 2-4 are all the claims pending in the application. Claims 2 and 4 are withdrawn and claim 3 has been rewritten into independent format and includes the subject matter of former claim 1.

Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claim 1 is rejected under 35 U.S.C. § 102(e) as being anticipated by Masuda *et al.* (U.S. 2003/0168392).

Claims 1 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki (JP 07-005160) in view of Sumiyoshi (JP 04-221759), and in further view of Jorgenson *et al.* (U.S. 5,389,221).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Masuda in view of Jorgenson.

Applicants respectfully traverse each of these rejections. While not agreeing to the propriety of the rejections, claim 1 has been canceled and incorporated into claim 3.

Combination of Masuda and Jorgenson

With regard to the combination of Masuda and Jorgenson, Masuda discloses a multi-dimensional liquid chromatography separation system and the first column, second column, and trap column are all liquid chromatography. Accordingly, all of the separation means in Masuda are liquid chromatography and another means for separation is not disclosed in Masuda.

Jorgenson, on the other hand, discloses two-dimensional separation systems, in which a column liquid chromatography is coupled with CZE (capillary zone electrophoresis). *See* Jorgenson, col. 1, lines 45-50 and 63-66. In other words, two completely different separation means are coupled in Jorgenson's system.

Therefore, the configurations of the above two separation systems are different from each other; *i.e.*, in Masuda the same separation means are coupled, whereas in Jorgenson, different separation means are coupled.

With regard to Jorgenson's teaching of microcolumns with an inner diameter ≤ 250 μm, this disclosure is not related to a separation system in which all of the means for separation are liquid chromatography, but relates to a system in which liquid chromatography is coupled with CZE. Accordingly, it would not have been obvious to use microcolumns with an inner diameter ≤ 250 μm in a system which used solely liquid chromatography.

Yamazaki and Sumiyoshi

The Examiner asserts that Yamazaki discloses in FIG. 1 a first column 7, a preparative portion (vacuum columns 15-1 :: 15-n, trap columns (enriching columns 21-1 :: 21-n), and a second column 23 (two-dimensional analysis column). The Examiner admits that Yamazaki does not disclose a path switching mechanism or that an inside diameter of the two-dimensional analysis column is 0.03-0.3mm. The Examiner relies on Sumiyoshi for teaching a path switching mechanism and Jorgenson for teaching a column having an inside diameter of 0.03-0.3mm.

The Examiner states that it would have been obvious to modify Yamazaki to include a path switching mechanism "in order to allow selective analysis of components from a particular column." However, even if Yamazaki were modified to include a path switching mechanism, the Examiner provides no explanation as to how this path switching mechanism could switch between "a state in which the preparative portion (15-1 :: 15-n) is connected to a first trap column (21-1) . . . and in which the two-dimensional analysis column (23) is connected to a second trap column (21-2)" *etc.*

Yamazaki teaches separation of a multi-component sample by coupling a plurality of columns in series. Adding a path switching mechanism that switches between states identified in claim 3 would be contrary to Yamazaki's system because the system is designed to function in series.

Further, because Yamazaki's system functions in series, it is unclear how a path switching mechanism applied to Yamazaki's system would be capable of connecting the alleged preparative portion (15-1 :: 15-n) to the first trap column 7 while at the same time also connecting the two-dimensional analysis column 23 to a second trap column, as recited in claim 3.

In the claimed system, "the apparatus is able to perform the trapping and concentration of the component in the trap column and the analysis in the two-dimensional analysis column 32 of the component trapped in the trap column, in parallel. This significantly increases the analysis efficiency, e.g., reduces the time necessary for the analysis." Specification, Pre-grant Publication 2007/0023639, ¶ [0097]. In sum, this parallel orientation of the system is not taught by

Yamaguchi, and Sumiyoshi does not cure the deficiencies of Yamaguchi by merely allegedly teaching a path switching mechanism.

Combination of Yamazaki and Jorgenson

Similar to Masuda, Yamazaki only discloses the use of liquid chromatography, contrary to Jorgenson, which discloses liquid chromatography coupled with CZE, and thereby microcolumns with an inner diameter ≤ 250 μm. Therefore, because Jorgenson's disclosure is not related to a separation system in which all of the means for separation are liquid chromatography, it would not have been obvious to use microcolumns with an inner diameter $\leq$ 250 μm in a system which used solely liquid chromatography, as in Yamazaki.

In view of each of these arguments, Applicants respectfully request that the rejections outlined above be withdrawn.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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